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The Effect Of Magnetic Field Therapy Accompanying Rehabilitation Exercises In The Treatment Of Some Soft Tissue Injuries In The Shoulder Joint

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Abstract

The importance of the research came in the use of the latest method of physical therapy (magnetic field) for some soft tissue injuries in the shoulder joint, because of the importance of this joint in helping individuals to perform their daily duties as the movement of the upper limb depends mainly on the safety and effectiveness of this joint and the study aimed to identify The effect of physical therapy (magnetic field) associated with rehabilitative exercises in the treatment of some soft tissue injuries in the shoulder joint, and the researcher used The experimental approach in the style of designing the individual station is equivalent, and the research sample included a number of patients with soft tissue injuries (muscles, ligaments) with partial tears, and their number was (8) injured from different activities and games, and field research procedures included conducting experiments and tests that included (pain degree, muscular strength , the kinetic range of the shoulder joint in dimensions, approximation and rotation), and based on the rehabilitation program for the special magnetic field, and after studying the case of the healthy sample by specialized doctors and therapists, the researcher adopted the special program of the device's programs, which is performed from a lying position on the back, then the device is placed on the shoulder area. The duration of treatment (6 weeks), and the number of rehabilitation units using magnets (18 units), the researcher concluded that the rehabilitation program for exercises The rehabilitation accompanying the magnetic therapy

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prepared by the researcher has a positive effect on improving the muscular strength and range of motion of the shoulder joint, and the researcher recommends emphasizing the necessity of adopting the program prepared by the researcher that accompanies the magnetic field in physical therapy centers, the necessity of using the strength of the magnetic field to treat other injuries.

Keywords: therapy, magnetic field, soft tissue, shoulder joint

Introduction

It has become the treatment requirements recently essential source depends on scientific methods and modern techniques and rapid treatment including magnetic field technology, and magnetic field therapy magnetic energy is used in the treatment of many diseases that affect the body and the magnet itself prepares the body to accelerate the balanced environment of the healing process to As well as rehabilitation exercises. Most of the individuals, with the nature of their daily work and continuous training, may be exposed to efforts and weights that increase the mass in one side and not the other. This in turn leads to the failure to maintain the structural balance of forces specifically in the neck area, which results in physical disorders that work on The decline in daily performance, and accordingly increased interest in therapeutic exercises and rehabilitation methods using various modern devices that play a major role in the lives of the injured and in strengthening their muscles in order to be qualified to withstand the physical work on them and their parts in most of their movements in order to avoid what may occur from disturbances that can lead to a permanent breach of The function of its parts (torment: 2010:30). Human bodies are electromagnetic devices, and electromagnetic currents move inside them in the same way that electric fields move through wires. It is surprising what the latest research revealed that the cells of the body possess magnetic poles in the composition of their nucleic acids, which indicates that these magnetic poles play a certain role in regulating the performance of these acids. Our bodies obtain their vital energy from two main sources. The first is through its metabolic processes, which provides 70% of the body's energy needs through the so-called (Krebs cycle). Krebs CycleThe second source is obtaining energy through the magnetic fields of the Earth, which provide the remaining 30% of the energy needed by the body to carry out its functions naturally . (Suhad Abdel Hamid and AmalDaoud Abdel Hassan: 29:2013), shoulder injuries of all kinds occur frequently in ordinary individuals as a result of work, stress or accidents. As for the methods of treatment (rehabilitation), its means and methods varied, including the therapeutic exercises developed by specialists and researchers, which also differed in terms of time,

intensity, frequency, and quality of tests that measure the extent of the development of injury recovery, according to the type of injuries that occurred and the general health status of the injured individual in terms of pain relief, activity and delay The emergence of fatigue and range of motion. Among the injuries that are related to high effort and poor physical fitness and body building are joint injuries, including (the shoulder joint), as well as for ordinary people and what this injury may cause of pain, and the shoulder joint is one of the synovial joints that has a range Extensive movement in various directions, and this movement is closely related to the integrity of the ligaments, muscles and wallet in the shoulder joint, and therefore therapeutic exercises are one of the most important ways to remove cases of dysfunction of muscles and joints.

Hence the importance of research in using the latest physical therapy method (magnetic field) for some soft tissue injuries in the shoulder joint, because of the importance of this joint in helping individuals to perform their daily duties, since the movement of the upper limb depends mainly on the safety and effectiveness of this joint.

The study aims to:-

1- To identify the effect of physical therapy (magnetic field) associated with rehabilitative exercises in the treatment of some soft tissue injuries in the shoulder joint.

The researcher assumes that:

- There are significant differences between the pre, medial and post tests in the treatment of some soft tissue injuries in the shoulder joint.

2- Research methodology and field strength:

1.2. Research Methodology: The researcher used the experimental method in the style of designing an equivalent single station. to suit the nature of the research.

2.2. Research sample : The research sample included a number of patients with soft tissue injuries (muscles, ligaments) with partial tears, and their number was (8) injured from different activities and games, after conducting a clinical diagnostic examination of the injury by a specialist doctor, and a radiological examination of the research sample was conducted under the supervision of a medical team A specialist from the specialized staff at Baquba Teaching Hospital, after clarifying the idea of research and selecting the sample.

Table (1)

It shows the details of the research sample in terms of the type of injury

	Injury type	**the number**
	torn ligaments	3
	Partial muscle rupture	5

Table (2)

It shows the arithmetic mean , standard deviation, median, and skew coefficient of the variables (mass, length, and age) of the research sample .

homogeneity element	s	Mediator	p	torsion modulus±3
length(m)	176.35	174.5	7.645	0.725
age (year)	18.37	18	0.130	1.582
mass (kg)	69.12	68.5	8.877	0.209

3.2. Equipment and tools used in the research:

Japanese video camera (Exilim) High-speed (1000) r/s with external storage unit, (1) electronic device for measuring length and mass, (1) (Chinese origin), laptop calculator (Dell), number (1) (Chinese origin), manual stopwatch type(Casio), number (4) (Chinese origin), metric tape, number (1), tape measure, length (10 m), from . company(Mark)Examination bed (medical stamen) (Chinese origin), bench for the patient to sit on, magnetic field deviceMagnetic, Junomitr device (Goinometer) to measure the range of motion of the joint .

4.2. Tests used in the research:

First: A test to measure the range of motion of the arms:

 Forward bend: Flexion: As the movement takes place on an axis and at a degree (0-180) on a transverse axis, the humerus moves forward and rotates to the medial side. Some muscles involved in this movement are:

The deltoid muscle (anterior fiber).

The pectoralis major muscle (clavicular part).

The coracoid muscle.

The biceps brachii muscle. (Sane: 312:1999)

 back tide: ExtensionIt is the opposite of flexion, as the movement takes place on the same axis and at a degree (0-45), the humerus moves backward and rotates to the lateral side. Some muscles participate in this movement, including:

The deltoid muscle (posterior fiber).

The pectoralis major muscle (the cartilaginous part).

latissimusdorsi muscle.

trochanter major muscle;

The triceps brachii (long head).

 Dimensions: Abduction And the degree of flexibility (180-0And the dimensions are starting from the position of the hanging limb next to the body (the resting position), the movement is free and easy to the extent of (90A) From the torso, i.e. when the humerus becomes horizontal and forms an angle with the body at the shoulder joint, and some muscles participate in this movement, including:

deltoid muscle (middle fiber).

supraspinatus muscle.

The biceps brachii muscle (the long head). (Sane: 313:1999)

 Rounding : AdditionIt is the movement of any part of the body close to the longitudinal axis of the body, such as bringing the arm close to the longitudinal axis of the body, and the degree of flexibility is (0-90) degrees.

 Rotational motions: CircumduetionIt is the movement of the member in all directions in the form of a circle, such as the movement of the full shoulder joint rotation, and only a joint of the type (ball and right) does such a movement, and the degree of flexibility is (0 - 90) degrees to rotate outside and inside. (Bastawisi Ahmed, 1999: 231).

Second: Maximum forces measurement test

 Muscular strength is tested using a dynamometer Hand Grip Dynamometer One of the most common strength tests.

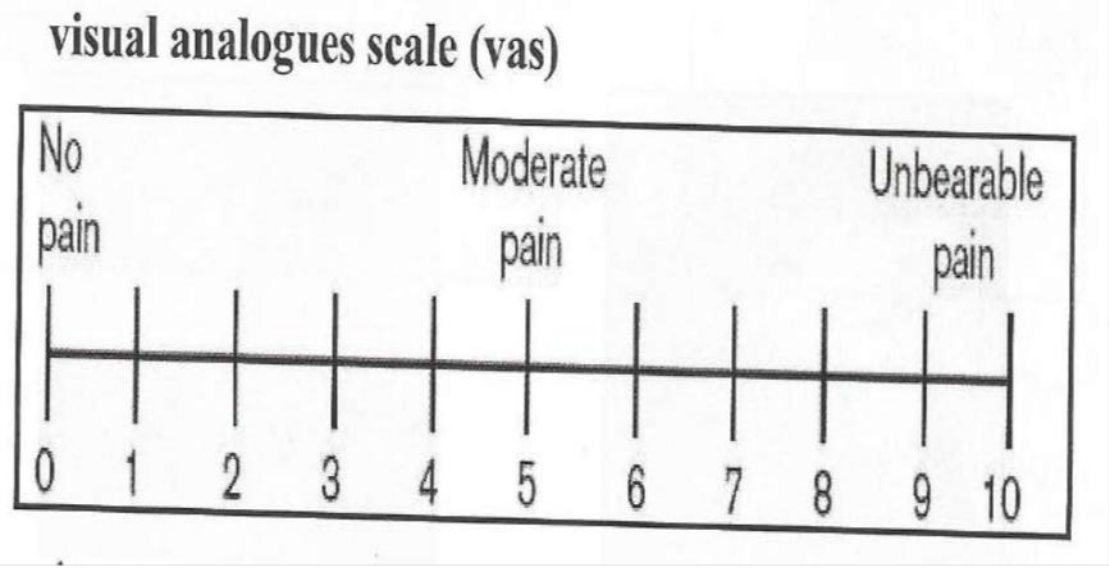
 This test is used as a therapeutic procedure and as an aid to discover and diagnose some diseases, and recovery from patients may be accompanied by an increase in muscle strength, which reflects the general condition of the body. long. (Abu Al-Ala' Ahmed Abdel-Fattah and Muhammad SubhiHassanein: 1997: 187).

 Muscular strength test for the muscle station working on the shoulder joint to record the number of grams that the patient withdraws and installed on the dynamometer. The pre-tests for patients are recorded in a form prepared for this purpose. After that, the proposed rehabilitation approach begins, the patient undergoes medial and dimensional tests and performs the proposed rehabilitation method himself. To display the rehabilitation exercises by the researcher to understand the exercises by the patients correctly and to apply them accurately as non-athletic patients, as well as the method of performing the test was presented by the researcher to the dynamometer on the patients.

 Pain Score Test Optical Analogy Pain Score (MedhatKassem: 114:2003)

It is an effective and easy-to-use measure to measure the intensity of pain, as it is widely used in research and treatment when a proper and rapid report of pain is required, and it has a numerical assessment consisting of (0 to 10) cm horizontal or vertical respectively, starting with the point of light pain and the absence of The pain, on the other hand, is very severe pain. The patient is required to mark the line (10) cm, and the scale of the degree of pain gives a number indicating the severity of the suffering of the pain or the lack and cessation of pain.

- The laboratory performs a simple, gradual movement in the affected part and stops when feeling pain.
- The score is recorded from 1 to 10 expressing the degree of his sense of motherhood.



shape (1)

Demonstrates pain intensity measurement form

6.2. Survey experiments:

1.6.1 Pilot experiments:

It was conducted at four o'clock in the afternoon on Friday, November 8, 2019 in the physiology laboratory at the College of Physical Education and Sports Sciences, on a sample of (2) players. The aim of this experiment was as follows:

- Knowing the suitability of the tests to the level of the research sample members.
- Ensuring the validity of the test location and its suitability for carrying out the tests.
- Identify the extent to which the sample members understand the tests used.
- Ensuring the number and efficiency of the auxiliary work team members.
- Know how long it takes to run tests and how long it takes to run each test.
- Preparing the assistant work team and introducing them to the work mechanism and distributing tasks among them
- The possibility of applying the magnetic field approach to the individuals of the research sample.

7.2. Tribal and median tests:

The researcher conducted the tribal tests on Monday and Tuesday 18-19/11/2019 on all members of the research sample, after completing all the research requirements, and three weeks after the start of the program, the average test was conducted for the members of the research sample.

8.2. Qualifying program:

The qualifying program prepared by the researcher, after confirmation by the specialists on the prepared curriculum, consists of two parts:

1 - Part one: The rehabilitation program for the magnetic field

The researcher, based on the rehabilitation program for the special magnetic field, and after studying the condition of the healthy sample by specialized doctors and therapists, the researcher adopted the special program of the device's programs as follows:-

A - It is performed from a lying position on the back, then the device is placed on the shoulder area.

B - Duration of treatment (6 weeks)

C - The treatment is performed on days (Sunday - Tuesday - Thursday)

D- The treatment is performed before the second part of the treatment, which is (rehabilitating exercises).

H - The number of qualifying units using magnets (18 units)

M - The main purpose of this part of the treatment is to relieve pain, as well as to prepare the muscle groups to receive the second stage, which is the use of therapeutic exercises.

2 - The second part of the treatment is the rehabilitation exercise therapy phase and is represented by the following

A - The duration of the qualifying exercises is 10-25 minutes

B - The program contains specialized exercises for the muscles of the cervical region

C - The program contains static - mobile exercises aimed at developing muscle strength

F- One qualifying unit contains 4 exercises

G - exercises consist of within the rehabilitation unit, with a frequency of 6-12 times

The qualifying exercises for the first unit began on Thursday, November 21, 2019 at 3:00 pm, and the exercises ended on Wednesday, December 30, 2019.

9.2. Post tests:

The researcher conducted the post tests for the research sample on Sunday and Monday corresponding to 3-4/1/2019), after the expiry of the qualifying exercises period, and using the same method of the pre test.

10.2. Statistical means: The researcher used the statistical bag (SSPS) to process the results.

3. Presentation, analysis and discussion of the results.

3-1 Presenting the results of the tribal, middle and dimensional tests under study.

Table (2)

Between the arithmetic means and the standard deviations of the variables under investigation in the three tests (pre-, mean, and post-test)

Variables	pretest		middle test		post test	
	s	±	s	±	s	±
degree of pain	3.44	0.81	1.56	0.81	0.56	0.63
flexing forward	93.44	15.46	141.25	13.60	174.38	6.55
back tide	26.56	10.12	38.13	8.14	53.44	5.98
banishment	114.06	18.64	149.06	12.94	172.19	7.52

Rounding	36.88	5.44	56.25	10.88	63.44	8.11
Rotate inward	113.13	10.47	150.31	16.68	164.69	11.03
Rotate outward	11.9838	11.09	139.69	17.75	151.56	13.87
Maximum strength	3.14	0.65	4.47	0.88	6.78	1.26

Table (3)

The analysis of variance shows between the three tests (pre-test, median, and post-test) for the variables under investigation

stage	Contrast source	sum of squares	degrees of freedom	mean squares	Values F		The significance of the differences
					calculated	mistake percentage	
degree of pain	between	68.167	2	34.083	59.378	.000	moral
	inside	25.813	6	0.574			
flexing forward	between	52982.292	2	26491.146	170186	.000	moral
	inside	7004.688	6	155,660			
back tide	between	5934.375	2	2967.188	72.728	.000	moral
	inside	1835.938	6	40,799			
banishment	between	27404.167	2	13702.083	71.945	.000	moral
	inside	8570.313	6	190,451			
Rounding	between	6040.625	2	3020,313	42.411	.000	moral
	inside	3204.688	6	71.215			
internal	betwee	2265,292	2	1132.646	66.990	.002	moral

rotation	n						
	inside	7640.625	6	169.792			
External rotation	betwee n	8478.125	2	4239.063	20.179	.000	moral
	inside	9453.125	6	210.069			
Maximum strength	betwee n	108.452	2	54.226	58.129	.000	moral
	inside	41.978	6	0.933			

Through what was shown in the tables (3) shows the existence of significant differences between the three tests (tribal - Central - dimensionality) and research variables and attributes the researcher these cause differences to the research variables influence of the magnetic field associated with the exercises qualifying as allowed this program for victims of this class the chance of recovery and qualify for the time period or limited.

The curriculum included exercises with gradual and varied repetitions, the purpose of which is to strengthen the muscles of the cervical region, which is considered one of the most important muscles on which the head rests. This remarkable development in this characteristic led to “the possibility of strength growth for muscle groups mainly related to the efforts made by these groups in daily life.” ". (Qasim Hassan Hussein and Bastawisi Ahmed: 197:1979)

Where the magnetic field worked to penetrate the skin in a specific place to absorb this energy through the capillaries and flow into the blood and for the blood to contain electrical charges and hemoglobin in the blood on iron, a magnetic current arises in the bloodstream and carries energy to the parts of the body and this energy works to stimulate the blood vessels and thus charged the cycle blood, which leads to increased blood flow (food) represented by food + O 2And be a balanced environment that improves the functions of the body. (Osama Riad: 46:2000)

In addition to the use of magnetic field therapy units helped in this aforementioned improvement, and the magnet in itself does not heal, but rather creates an environment for the body to speed up the healing process. And (SuhadHaseeb, AmalDaoud, 2013, 31) mentions that the effectiveness of magnetic therapy in improving the body's internal capabilities and employing them in comprehensive self-treatment processes . She also mentioned, "The use of medical magnets

during magnetic therapy courses works on the so-called waterfall interactions." When the magnet is placed over the area of pain or inflammation, for example, this leads to activating the movement of blood within tissues and cells, which helps in the delivery of nutrients from vitamins, minerals and oxygen in quantities. On the other hand, placing the medical magnet over the pain area leads to a clear thermal effect that effectively helps in increasing the flexibility and relaxation of the muscles, which helps in treating and strengthening the working muscles that surround the vertebrae and thus prevents tearing or sliding of the vertebrae as a result of movement. Jamal SabriFarag: 415: 2011).

Conclusion

In light of the results obtained by the researcher, the researcher concluded that the rehabilitation program for the rehabilitation exercises accompanying magnetic therapy prepared by the researcher has a positive effect in improving muscular strength and range of motion for the shoulder joint, and the researcher recommends emphasizing the necessity of adopting the program prepared by the researcher accompanying the magnetic field in treatment centers Naturally, it is necessary to use the strength of the magnetic field to treat other injuries.

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Supplement (1)

How magnetic field device software works

Program No.	**Indications**	**intensity in%**	**the time**	**the field**
1	rheumatic diseases	50 magnetic induction units	30 minutes	A(50Hz) I(50-100) B(100)
2	Repair, regeneration and restoration of tissue after surgery	50 magnetic induction units	30 minutes	I B
3	swavan knuckles	75	20 minutes	A I
4	Delayed fracture healing and pseudoarthrosis	75	30 minutes	A I B
5*	Cervical suffans	25	30 minutes	A I B
6	Getting rid of joints, delaying healing, fragility, pain in the vertebrae, and herniated discs	100	30 minutes	A I B

7	Cervical suffans	25	30 minutes	I A
	Sovan the joints	50	30 minutes	I A
	Delayed healing of pseudoarthritis	75	30 minutes	I A
8	Delayed healing of pseudoarthritis	100	30 minutes	I A